

THURSDAY, SEPTEMBER 20, 1900.

*A MAGNETIC THEORY OF THE UNIVERSE.**From Matter to Man; a New Theory of the Universe.*

By A. Redcote Dewar. Pp. 289+viii. (London: Chapman and Hall, Ltd., 1898.)

WE do not recommend this work to the serious attention of our readers, but as a study in word-stringing it is not devoid of interest. It appears to be the production of a writer who has acquired a knowledge of scientific terms by extensive reading, without having any real grasp of the vast range of subjects over which he travels. The result is such as might have been arrived at by a student who had been through a hurried course of cram, and who at his final examination had been set some such question as this:—Given, a vocabulary of scientific terms, construct a theory of the universe.

The author is strong on magnetism. We have never met with such a liberal use of this term as is indulged in by Mr. Dewar. Like the "vapours" which afflicted our ancestors in the last century, and which accounted for all their ailments, the word magnetism accounts for nearly everything in Mr. Dewar's universe. It is in the fifth chapter that the stupendous importance of this form of energy is first sprung upon the reader:—

"The inference from this basis [that every atom is a magnet] is astounding, for not only does it involve the magnetism of the earth as well as the magnetism of all the constituents of the earth, but it establishes beyond a doubt the *magnetism of all the products of the earth—mineral, vegetal and animal*. Every crystal, plant, animal and man is thus a magnet, whose every energy—muscular, nervous, vital, or mental—resolves itself into the familiar operations of magnetism."

"Still further, as all the planets and heavenly bodies are alike in nature, so far as we can judge from analogy, so must they be governed by similar energy to the earth. Hence we reach the final conclusion, that *the bottom energy of the universe is also magnetism*" (pp. 72-73).

Having once become impregnated with this universal magnetic cult, the reader, who may otherwise have been unprepared for the series of mental shocks which is in store for him, will learn with comparative calmness that the difference of gravity at the equator and the poles is because the earth is a magnet (p. 69); he will feel sure that sooner or later "animal magnetism" mesmerism, &c., are bound to appear on the scene, and in this he will not be disappointed (p. 87); and he may even learn with equanimity that he possesses "a virtual magnetic battery" in his "vacuole or stomach" (p. 85). In the chapter on the causes of vegetal evolution we read:—

"These huge internal fires [of the earth] are virtually *the earth's magnetic battery*, through which it is kept in life as a living planet tenanted with vegetal and animal life; hence, when all conditions are suitable, and the soil is properly saturated with water, thereby inducing suitable chemical action, the internal magnetic forces throw up a clotted vegetation on every available spot of ground on the globe. *This vegetation is but a bristling beard of earthly material ejected by the earth's magnetism*; filaments of matter, having the same relation to the earth as a man's beard to his chin, or as the bristling iron filings on a horse-shoe magnet" (p. 162).

It must be admitted that the force of magnetism can no further go, and the attributing to this agency of the vegetable-like accumulation of snow-drift on a projecting obstacle (p. 124), or the turning of a sun-flower towards the sun (p. 137), may be accepted as a mere bagatelle. Truly, as the author says, after having evolved "vegetal molecules" by a "chance flux of suitable atoms," the "magnetic laws are equal to all emergencies" (p. 159). The subtle distinction between a horse-shoe magnet as a *dry magnet*, and a plant as a *wet magnet* (p. 161) is too fine for any but ultra-metaphysical minds to grasp, but since it leads to the practical conclusion that a flower-pot full of moist earth is an artificial plant battery, it may be allowed to pass by virtue of its horticultural merits.

We confess that, in turning over the pages of this astonishing production with the object of endeavouring to learn the author's views, we have been so fascinated by his glib manipulation of the affairs of the universe, that we have allowed ourselves but little time for a critical examination of his scientific data. In fact, the work may be said to consist mainly of generalities, so that there are but few detailed statements to grasp. Here are a few specimens:—

The law of combination in definite proportions is illustrated (p. 58) by the statement that "if 20 parts of oxygen be mixed with 6 of hydrogen, only 16 parts of oxygen and 2 of hydrogen unite, 8 parts remain uncombined." This error is driven home in the following page:—

"Innumerable elements, for instance, may often meet in suitable conditions for combination, but if unsuitable in *proportion*, no selection ensues; consequently there is no production," &c.

Hydrogen is said to be a constituent of saltpetre (p. 79).

"If a lot of chips be thrown into the water they all attract each other and form a mass" (p. 87). This is explained by the statement that sticks and stones require "stick and stone magnets to magnetise them."

"Contrasted with chemical combination, chemical decomposition has been almost ignored by chemists (p. 101).

"Magnetic induction" is used to explain the crystallisation of a solid from a solution (p. 118).

After describing the movements of a "geometer" caterpillar, the author says: "Other caterpillars and centipedes develop feet on each ring" (p. 198).

"The fire-flies of America, which, Diogenes-like, carry a lamp with them," are classed with the bombardier beetle, both the light of the former and the discharge of the latter being described as "undoubtedly the result of electric action" (p. 201).

It need hardly be said that the propounder of a new philosophy—such as Mr. Dewar claims to be—must clear away the rubbish of previous thinkers before he can lay the foundations of his own system. Many of the current doctrines are accordingly denounced in no measured terms, and the author's emendations launched at the reader. For example, the classification of matter into simple and compound substances by chemists is scoffed at (p. 55), and here is Mr. Dewar's amendment:—

"From unlimited corroborative evidence we believe this [duality or sexuality in elementary substances] to be the case; hence we enunciate as one of the fundamentals of the new Materialism that the normal chemical

division of the elements into metallics and non-metallics is the bottom classification of matter, the only one with confidence to be designated great."

Again (p. 56) :

"With this alteration (hydrogen considered as metallic) are we warranted in ascribing to this dual classification of substance that importance, both scientifically and philosophically, which we assign it? The evidence is overwhelmingly affirmative, for no known natural product exists which does not contain both classes of these elements in combination. *Matter itself must thus be sexual.*"

There is a very widely spread mineral substance composed of silicon and oxygen which forms no inconsiderable a proportion of the earth's rocky constituents, and of which the author has no doubt heard. Silica in its various forms is certainly a natural product; and so Mr. Dewar will no doubt insist upon classifying silicon with the metals. There is also a gas composed of carbon and oxygen which is present in the atmosphere, and which is of vital importance for plant life. We should like to know how Mr. Dewar brings carbon dioxide under his "fundamental principle, which embodies one of the most salient truths in the science of the century" (p. 57).

The reader who is anxious to know how the "New Materialism" deals with the problem of life will find it disposed of in a light and airy way that might even be provocative of mirth were it not evident on every page that the author intends us to take him seriously. There is absolutely no mystery about it at all—there is no unknown force, there is no impulse different from the ordinary laws of matter. The animal is "a mere mass of conjoined magnets," containing "a virtual magnetic battery in its stomach" (p. 222). Elsewhere we are told that the plant differs from the animal in having its magnetic battery outside instead of within, and the author seems quite proud of having discovered a distinction between animals and plants that has hitherto eluded the men of science (p. 164). As for the appearance of life on the earth, it is a mere trifle to the "New Materialism" :

"Under suitable conditions of heat, light and moisture, a chance flux of suitable atoms combines sexually into vegetal molecules" (p. 159) [magnetism as before].

"Even, as on a frosty night, the surface of the ground is whitened with crystals of rime, so in many a river and ocean bed the water must often coagulate with millions of vegetal and animal cells" (p. 209).

"But as igneous activity subsided to solid quiescence, and water, soil, light and heat interacted, the protoplasmic elements—oxygen, hydrogen, carbon, nitrogen, &c.—would meet in suitable proportion, and [magnetism as before] the spontaneous production of simple organisms—protophyta, protozoa and the lowest kinds of fungi and algæ—would ensue as a matter of course, &c." (p. 246).

The origin of man is described (p. 247) in a manner that can only make the reader exclaim that the New Materialism, like a certain historical character, is *capable de tout* :—

"Man's first progenitors thus probably appeared on the earth as spontaneously produced protoplasmic cells or ovules, hundreds or thousands in number, developed by sexual and magnetic affinities from a flux of the chemical elements in some ambrosial inlet of water."

No further extracts need be given, and no further criticism is necessary to justify the opinions expressed at the beginning of this notice. R. MELDOLA.

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OUR BOOK SHELF.

Untersuchungen über Philons und Platons Lehre von der Weltschöpfung. Von Jakob Horowitz. Pp. xiii + 124. (Marburg : N. G. Elwart, 1900.)

DR. HOROWITZ' essay is the outcome of his thesis approved for the degree of philosophy in the University of Marburg. Its purpose is to focus the rays of light which close exegesis of the *Timaeus* throws upon the cosmogonic scheme wherein Philo effected the synthesis of Plato and Moses. While recognising the Stoic and Neopythagorean elements in Philo's teaching, Dr. Horowitz has little difficulty in showing that in both style and matter the dominant influence was Plato's. It is to the analysis, then, of Plato's creation-myth that we must turn if we would understand Philo with his enormous influence on the development of the doctrine of the Logos in Christian literature.

The ζῶον νοητόν of the *Timaeus* is no mythical duplicate of the demiurge, but distinguished as *das ewige Urbild* from the latter, whose real causal activity leads to an identification with the creative reason and ideal good of earlier dialogues. The subordinate artificers of physical creation are not the ideas as distinct from the idea of good, but in part a concession to popular theology, in part perhaps due to the place of evil in Plato's system, and the fact that dualism, though overruled, is not extinguished. In his valuable and textually supported discussion of the problems, Dr. Horowitz perhaps tends to overestimate the consistency and continuity of Plato's writings, and to underestimate the *mythus* element in the *Timaeus*.

Now Philo's intelligible world or order, the work of the one day of creation before time was or the serial "days" of the production of the world of sense began, is to be assimilated to the intelligible ζῶον of Plato as modified in conception by a use of the Stoics' metaphor of architect and supra-sensual city. It is not the Logos save in the sense in which his plan is the mind of the architect. Dr. Horowitz moves familiarly among the conceptions of Logos, intelligible world, ideal man and the like, and by adjustment of the emphasis on the various clauses of Philo's commentary produces a construction which might carry conviction. The *mutata* of Philo, and the reasons why they were *mutanda* from the Platonic theory, are well brought out. The ideal man is the work of God, the physical man is the work of God in conjunction with subordinate agents, and these powers find their natural analogue in the angels of the Jewish scheme. Platonic scholars, or those of them who have not despaired of the ζῶον as unintelligible, will find food for reflection in the one side of Dr. Horowitz' study. Theologians, students of Neoplatonism, persons who take an interest in the Hegelian *Religionsphilosophie*, may well take their starting-point from the other. H. W. B.

Fungus Diseases of Citrus Trees in Australia, and their Treatment. By D. McAlpine. Pp. 132; 19 plates. (Melbourne : Brain, Government Printer, 1899.)

THIS is one of the many useful publications dealing with plant diseases issued by the Victoria Department of Agriculture. According to statistics given, the cultivation of orange and lemon trees is extending rapidly, and one successful lemon grower considers that instead of paying 62,498*l.* annually for oranges and lemons, the colony could not only produce sufficient for home consumption, but could also supply the half of Europe. Under these circumstances the appearance of a work of the kind under consideration is most opportune, more especially as it is stated to be written for the benefit of growers. It is therefore somewhat disappointing to find that a considerable portion of the text is devoted to technical descriptions of new species of fungi, a subject of no interest whatever to cultivators, more